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| APPLICATION NO.                                                                           | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/589,820                                                                                | 08/17/2006  | Hirokazu Nunokawa    | Q94985              | 2358             |
| 23373                                                                                     | 7590        | 06/14/2010           |                     |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      |                     |                  |
| EXAMINER                                                                                  |             |                      |                     |                  |
| LEGESSE, HENOK D                                                                          |             |                      |                     |                  |
| ART UNIT                                                                                  |             | PAPER NUMBER         |                     |                  |
| 2861                                                                                      |             |                      |                     |                  |
| NOTIFICATION DATE                                                                         |             | DELIVERY MODE        |                     |                  |
| 06/14/2010                                                                                |             | ELECTRONIC           |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
PPROCESSING@SUGHRUE.COM  
USPTO@SUGHRUE.COM

### Office Action Summary

**Application No.**

10/589,820

**Applicant(s)**

NUNOKAWA, HIROKAZU

**Examiner**

HENOK LEGESSE

**Art Unit**

2861

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 3,4 and 11-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10,15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/06)  
Paper No(s)/Mail Date 08/17/06,08/29/08,12/11/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group I (Claims 1-11) in the reply filed on 02/22/2010 is acknowledged. Applicant's further election of Species A (Figs.15A, 15B) and Subspecies b (Figs.22B, 22C) in the reply filed on 02/22/2010 is acknowledged. It is noted that claims 3,4, and 11 are directed to non elected Subspecies (c),Figs. 23B,23C. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement (with respect to the election of Species A and Subspecies b), the election has been treated as an election without traverse (MPEP § 818.03(a)). Thus, Claims 3,4,11-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,5-10, and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujimori (US 2001/0030671).

**Regarding claim 1**, Fujimori teaches a printing apparatus (printer PRT in fig.1), comprising:

(A) a carry mechanism (26,23 in fig.3) that carries a medium (22) along a predetermined direction;

(B) a nozzle (nozzle NZ of printhead 28 in figs.3-5) that performs a moving and ejecting operation for ejecting ink toward the medium (22) while moving relatively with respect to the medium, during an interval of a carry operation by the carry mechanism (26,23); and

(C) a signal output section (controller 40 in fig.6) that outputs a first timing defining signal (PTS1 in fig.24; also PTS signals in figs.23,32 corresponds to each pixels) defining a periodical timing for ejecting ink from the nozzle (NZ) toward a position corresponding to a pixel configuring an image to be printed, and a second timing defining signal (PTS2 in fig.24; also PTS signals in figs.23,32 corresponds to each pixels) defining a periodical timing for ejecting ink from the nozzle (NZ) toward a position displaced from the position corresponding to a pixel configuring an image to be printed, wherein the signal output section (controller 40 in fig.6) outputs either the first timing defining signal (PTS1 in fig.24; also PTS signals in figs.23,32 corresponds to each pixels) or the second timing defining signal (PTS1 in fig.24; also PTS signals in figs.23,32 corresponds to each pixels) for each moving and ejecting operation (figs.25,26,28,29).

**Regarding claim 2,** Fujimori further teaches wherein the first timing defining signal (PTS1 in fig.24; also PTS signals in figs.23,32 corresponds to each pixels) and the second timing defining signal (PTS2 in fig.24; also PTS signals in figs.23,32 corresponds to each pixels) are output alternately from the signal output section (40, fig.6).

**Regarding claim 5,** Fujimori further teaches wherein ink is ejected successively two or more times from the nozzle (NZ, fig.5) according to a certain timing defined by at least one of the first defining timing signal (PTS1, fig.24) and the second defining timing signal (PTS2) (see figs.26,28,29, ink is ejected successively during forward and backward passes).

**Regarding claim 6,** Fujimori further teaches wherein of the ink ejected successively two or more times from the nozzle (NZ, fig.5) according to the certain timing, ink ejected first is ejected toward the position corresponding to the pixel or the displaced position (see figs.26,28,29,24,15, the ejected inks in the two passes are directed to the pixel position or at a position displaced from the pixel positions)

**Regarding claim 7,** Fujimori further teaches wherein when ink is ejected successively two or more times from the nozzle (NZ, fig.5) according to the certain timing, a spacing between a position on the medium on which ink ejected first lands and

a position on the medium on which ink ejected last lands is wider than a spacing between pixels configuring an image to be printed (see figs.15,25,26, the spacing between ink drops made during fore ward pass and back ward pass is wider than the spacing between the adjacent pixels clearly since the drops are not completely overlapping).

**Regarding claim 8**, Fujimori further teaches wherein when ink is ejected successively two or more times from the nozzle (NZ, fig.5) according to the certain timing, the quantity of ink ejected each time differs (see figs.23,24,28,29, the pulse W1 is for ejecting small ink drop and W2 is for ejecting medium ink drop).

**Regarding claim 9**, Fujimori further teaches wherein the moving (using carry mechanism 26,23 in fig.3) and ejecting (through nozzle NZ fig.4) operation for ejecting ink to be ejected toward a position corresponding to a certain pixel configuring the image and a position displaced from such position is different from the moving and ejecting operation for ejecting ink to be ejected toward a position corresponding to another pixel adjacent to the certain pixel in a moving direction of the nozzle and a position displaced from such position (this is true for instance when the ejection of ink drops to adjacent pixels is during different passes and also when the ink drops are of different sizes. See figs.15,25,26).

**Regarding claim 10**, Fujimori further teaches a plurality of the nozzles (plurality of nozzles NZ in figs.4,5).

**Regarding claim 15**, Fujimori further teaches using the printing apparatus (printer PRT in fig.1) according to claim 1.

**Regarding claim 16**, Fujimori further teaches printing system (fig.1) comprising: a computer (PC); and the printing apparatus (PRT) according to claim 1, capable of communicating with the computer (PRT communicates to the PC at least through the cable CB).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK LEGESSE whose telephone number is (571)270-1615. The examiner can normally be reached on Mon.- Fri. Between. 8:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW LUU/  
Supervisory Patent Examiner, Art Unit 2861

H.L.  
June 6, 2010